

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Indian Health Service
Rockville, Maryland 20857

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INDIAN HEALTH SERVICE CIRCULAR NO. 94-1

WATER FLUORIDATION POLICY ISSUANCE

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1. PURPOSE. To establish a uniform policy for the implementation, management, and evaluation of the Indian Health Service (IHS) Water Fluoridation Program.
2. BACKGROUND. The effects of the addition of fluoride to drinking water have been studied for many years. When the IHS began its program in the early 1970s, data indicated a reduction in the prevalence of dental caries by as much as 40-60 percent in children in communities where the water was fluoridated. More recent studies in North America have verified the positive effects of fluoridation, but with reductions in the 20-40 percent range depending upon the age studied. Much of this difference in effectiveness may be attributed to the presence of fluoride in other products used or consumed by the population. Regardless, the studies are uniform in showing that fluoride greatly reduces tooth decay, and it is estimated that caries may be reduced by 20-40 percent over a lifetime because of water fluoridation.

Community water fluoridation has emerged as one of the most cost-effective public health measures of the 20th century because of: (1) the high degree of effectiveness in the reduction of dental caries in individuals who have consumed fluoridated water from birth, (2) the demonstrated safety of

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properly fluoridated water systems, (3) the ease of implementation, and (4) the low-cost. Fluoride benefits the entire population served by the central water supply, regardless of socioeconomic or educational background. In addition, no cooperative effort is required by individuals other than their drinking the water.

The naturally occurring fluoride levels in almost all the water sources used by Indian communities are lower than the American Dental Association's (ADA) recommended level for the reduction of dental caries and below the lower control limit for adjusted systems recommended by the Centers for Disease Control (CDC) and the Association of State and Territorial Dental Directors (ASTDD).

While the dental caries rate is decreasing nationwide, the prevalence of dental caries within the American Indian and Alaska Native (AI/AN) population remains approximately two times greater than the non-Indian population, based on the 1990 IHS Oral Health Survey. These high dental caries rates for AI/AN children are similar to the rates for all United States children living in rural areas where there is limited access to fluoridated drinking water.

It is important to maintain fluoride concentrations at the optimum levels for lowering prevalence of dental caries while reducing the risk of developing dental fluorosis.

3. DEFINITIONS.

- A. Community Water System - A public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year round residents.
- B. Compliance - A water system is considered to be in compliance for the year if the time-weighted fluoride concentration, determined by a minimum of three samples per month, is within the optimum range for 9 of 12 months.
- C. Fluoridation Committee/Team - The Area and/or service unit delegation composed of personnel from: health education, environmental health, dental, public health nursing, tribal water utility, other tribal representatives, and/or personnel representing other

fields of expertise. It is recommended that Area and service unit dental staff be designated as the respective fluoridation committee/team coordinators. The team may be a component of the Health Promotion/Disease Prevention (HP/DP) committee.

- D. Monitoring - The regular collection and analysis of water samples and the adjustment of fluoridation equipment to ensure that the fluoride concentration is within the desired range. Monitoring and reporting to the appropriate authority is the responsibility of the owner/operator of the water system.
- E. Public Water System - A system having at least 15 service connections or regularly serving an average of at least 25 people daily for at least 60 days each year. (Environmental Protection Agency [EPA] Safe Drinking Water Act.)
- F. School Water System - A water supply serving a NON-RESIDENT student population in attendance for at least 60 days of the year. A school water system meets the EPA definition of a Non-Transient, Non-Community Public Water System.
- G. Surveillance - The ongoing, comprehensive review of the fluoridation operation, including quality assurance testing and an assessment of the adequacy of monitoring and reporting as performed by the operator. This includes the use of the IHS Fluoridation Data System and the collection of data for that system. Surveillance is an IHS responsibility.
- H. Technical Assistance - Services including consultation, training, one-on-one assistance, written correspondence, and recommendations provided by IHS personnel. Technical assistance does not include providing direct operations, control, or adjustment of tribal fluoridation equipment.
- I. Water System Operator - The organization and/or individual having responsibility for the operation, maintenance, and control of the community water system and associated fluoride adjustment equipment.

4. POLICY. It is the policy of the IHS to promote water fluoridation and provide technical assistance to tribes and communities to maintain optimal levels of fluoride in their community water systems. The IHS program administered under this policy is designed to provide AI/AN people with access to the oral health benefits of fluoridated water.

A. The adjustment of the fluoride concentrations in drinking water to optimal levels is achieved when all the following criteria are met:

- (1) The naturally occurring fluoride levels are lower than the lower control limit for adjusted systems recommended by the CDC and ASTDD.
- (2) The fluoridation of the water supply is acceptable to the community being served.
- (3) The water supplier or owner of the water system serving the community agrees to operate and maintain the fluoridation equipment and monitor adjusted fluoride concentrations to achieve optimal fluoride levels in the community water supply.
- (4) The water supplier or owner is capable of operating and maintaining fluoridation equipment and monitoring the adjusted fluoride levels.
- (5) The design and/or physical configuration of the water system can incorporate or reasonably be adapted to incorporate fluoridation equipment.

Special considerations that should strengthen indications for fluoridation and help establish priorities are:

- (1) Decay rates higher than national mean decay rates.
- (2) Higher than Area average child/adult population ratio.
- (3) Limited access to and/or availability of clinical dental services.
- (4) Expressed desire, rather than only acceptance, by the community to receive the benefits of fluoridation.

8. Where fluoridation of community **water** supplies is not feasible, or in areas where homes are served by fluoride-deficient individual water systems, consideration shall be given to fluoridate the local school water system. Fluoridation of school water supply will provide dental health benefits to the 'school age population.
- C. Where AI/AN people are served by non-AI/AN water systems under State or local control, the IHS will consult with and provide assistance to State or local officials in promoting and implementing fluoridation programs.
- D. Where the service unit director (SUD) is identified as having responsibility for fluoridation policy objectives, and the health, program is contracted by the tribe, these policy objectives become the responsibility of the tribal health program and shall be negotiated as part of the contract.
- E. The IHS responsibilities for community **water** system fluoridation are outlined in the objectives and functions listed below. The identified IHS functions are limited to promotion, construction, surveillance, training, and technical assistance. Routine operation, maintenance, control, and monitoring of community water fluoridation systems remain the responsibility of the owner of the water supply.

5. **OBJECTIVES/RESPONSIBILITIES.**

A. **Objective 1.**

To promote the fluoridation program within the IHS and to work with other Federal and State agencies on fluoridation-related activities.

Primary Responsibility: Director, IHS; Associate Director, Office of Environmental Health and Engineering (OEH&E), Division of Environmental Health (DEH), Environmental Management Branch (EMB); Associate Director, Office of Health Programs (OHP), Division of Clinical and Preventive Services (DCPS), Dental Services Branch (DSB).

Functions:

- (1) Establish and maintain a Headquarters fluoridation committee/team composed, of personnel from the dental and environmental health programs and other appropriate disciplines, which will meet at least quarterly;
- (2) Review and revise the Fluoridation Policy as needed.
- (3) Assist IHS Areas in the development of plans for fluoridation surveillance, promotion, training, and technical assistance?
- (4) Coordinate efforts with other Federal and State agencies engaged in fluoridation activities.
- (5) Arrange for a biennial IHS Fluoridation Conference in collaboration with the CDC.

B. Objective 2.

To provide education and training concerning the oral health benefits and procedures of water fluoridation to all appropriate tribal and IHS personnel.

Primary Responsibility: Area Directors and SUDs.

Functions:

- (1) Establish and maintain Area and service unit fluoridation committees/teams. The teams shall:
 - a. Meet at least quarterly.
 - b. Formulate an overall plan for fluoridation surveillance and promotion, in accordance with the IHS Fluoridation Policy.
 - c. Develop, maintain, and distribute fluoridation information materials.
 - d. Present general fluoridation information to community, tribal, and school groups.

- e. Provide continuing education and disseminate fluoridation information materials to IHS staff, tribal leaders, water system personnel, and other community members working in the fluoridation program.
 - f. Maintain a current file of resolutions that communities or tribes may have adopted in favor of or opposed to fluoridation, and forward copies to the Area Associate Director, OEH&E, and the Area Dental Officer.
 - g. Keep the SUD, Area Director, and tribes informed on progress or problems in the fluoridation program.
- (2) Request opportunities to present the fluoridation option to non-fluoridated communities where a desire for fluoridation has not yet been expressed. Such presentations, preferably to be made by the Area dental staff, will include a description of the needs, benefits, costs, and responsibilities of fluoridation.
 - (3) Arrange, at least annually, for the Area or service unit dental staff to provide a fluoridation status report to the community governing body and tribal health board.
 - (4) Promote fluoridation for water systems that serve AI/AN communities but are owned by other entities such as: cities, counties, districts, or Bureau of Indian Affairs.

C. Objective 3.

To determine the need for fluoridation equipment based upon the natural fluoride concentration in the community water. This information will be compiled and included as part of the annual report on sanitation facilities serving AI/AN people.

Primary Responsibility: Headquarters, DEH; Area, OEH&E.

Functions:

- (1) Maintain and annually update information in the . data systems that will indicate for each water system:
 - a. The existence or need for fluoridation or defluoridation.
 - b. The compliance status of fluoridated water systems with recommended optimum fluoride concentrations.
 - c. Information on population served.
- (2) Estimate the cost of providing needed fluoridation equipment, training, and a 1-year supply of chemicals as part of the deficiencies identified for each project. The information shall be reported in the Sanitation Deficiency System (SDS).
- (3) Prepare an annual report that includes the fluoridation status of all community water systems and the need for equipment and training.

D. Objective 4.

To provide for the purchase and installation of fluoridation equipment (chemical feeders, analyzers, and safety equipment).

Primary Responsibility: Area, OEH&E.

Functions:

- (1) Address the status of fluoridation in Project Summaries for community sanitation facilities construction projects serving existing, new, or improved housing. The Project Summaries shall include estimated costs of operation and maintenance and, whether or not equipment will be installed. The rationale for the decision should be based on the criteria listed in Section 4A of this policy. This decision will be reviewed with the Chief, Service Unit Dental Program; the SUD; and the Area Dental Officer, prior to the referral of the Project Summary to the Area Director for signature.

- (2) Use IHS funds from sources other than Sanitation Facilities Construction to achieve maximum improvement in oral health per dollar expended, consistent with IHS policies and authorities. Rationale for decisions to spend these funds will include the same criteria identified in Section 4A. The decision will be reviewed with the Chief, service unit dental program; the SUD; and the Area Dental Officer.
- (3) Standardize fluoridation equipment as much as possible in the interest of simplicity, economy of operations, and ease of procurement of replacement parts and chemicals.
- (4) Provide analytical instruments, safety equipment, and training as part of a construction project.

E. Objective 5.

To ensure that new fluoridation equipment installed by the IHS is properly adjusted to provide the recommended concentration of fluoride in the community water.

Primary Responsibility: Area, OEH&E, and SUDs.

Functions:

- (1) Conduct, on INITIAL START-UP, field analysis of water samples every day until the recommended fluoride concentration is obtained for at least 10 consecutive days.
- (2) Record analytical results obtained during the start-up period. In addition, the water system shall be added to the IHS Fluoridation Data System.
- (3) Verify field analytical instrument accuracy by obtaining a water sample and comparing field analytical results with those obtained on a portion of the same sample submitted to a Regional, Area, or State laboratory. Verification shall occur at the time of transfer of the system to the tribe.
- (4) Provide a 1-year supply of chemicals, safety equipment, testing equipment, reagents, reporting forms, and operating manuals at the time of fluoride equipment installation.

- (5) Ensure all fluoridation equipment is installed and operating properly at the time of transfer of ownership.

F. Objective 6.

To train community water system operators in fluoride monitoring and maintenance of fluoridation equipment.

Primary Responsibility: Area, OEH&E.

Functions:

- (1) Train water operators during equipment installation so the operator can identify component parts and observe them being put in place.
- (2) Train operators on the use of the fluoride feed equipment, analytical equipment, and safety equipment. Operators should be able to demonstrate to the trainer that: fluoride levels can be maintained within the acceptable range; analytical instruments can be used properly and accurately; and safety equipment can be used properly.
- (3) Provide appropriate training reference materials and operation and maintenance manuals to the operators.
- (4) Train operators so they can accurately explain and demonstrate analysis, monitoring and reporting requirements, safety precautions, and fluoride concentration calculation. Operators should also be trained to identify needed repair parts and fluoridation supplies and sources for obtaining them.
- (5) Document training of all water system operators.

G. Objective 7.

To provide ongoing surveillance of water systems with adjusted fluoride levels and make recommendations for needed corrective actions to appropriate community authorities.

Primary responsibility The DEH, EMB, DCPS, and DSB, at Headquarters; Area Director; Area Fluoridation Committees/Teams; and Service Unit Fluoridation Committees/Teams.

Functions :

- (1) Maintain a IHS Fluoridation Data System designed to evaluate and report tribal monitoring of fluoridated water supplies. Headquarters West shall distribute quarterly reports to the IHS Director, Area Directors, and Area Fluoridation Teams.
- (2) Submit analysis results for participating tribal water supplies to the IHS Fluoridation Data System. Areas shall submit this information at least quarterly.
- (3) Review and evaluate the IHS Fluoridation Data System reports and distribute status reports to the SUD, tribal officials, and water system operators. Area Fluoridation Committees shall distribute the quarterly reports.
- (4) Notify appropriate tribal officials in writing when monitoring and reporting responsibilities are not being met. The water system operator shall be requested to submit fluoridation monitoring results to the Area or Service Unit Fluoridation Team. The IHS shall not assume routine monitoring responsibility.
- (5) Establish a program of quality assurance testing for split samples collected by the water system operator. The quality assurance testing program may be conducted through a IHS laboratory or by contract with a EPA or State approved water testing laboratory.

H. Objective 8.

To provide technical assistance where surveillance reveals that problems exist and/or when technical assistance is requested by the tribe or community.

Primary Responsibility: Area, OEH&E, and SUDs.

Functions:

- (1) Provide technical assistance to the tribes upon request.
- (2) Offer technical assistance when problems are being experienced by the tribes in maintaining the fluoride levels within recommended ranges.
- (3) Notify the tribal council, verbally and in writing, when surveillance indicates that some problem with the fluoridation system exists. After exhausting steps to assist the operator in making corrections, the IHS shall recommend that the fluoridation system be shut-off, including disconnection of plumbing and electrical connections to the fluoridation system, when any one of the following conditions exist:
 - a. Samples have not been taken during the preceding 2-month period.
 - b. Analytical results of samples indicate that the fluoride concentration in the system has been at or above 2 mg per liter for more than 2 months.
 - c. Analytical results of samples indicate that a potential health hazard may exist.
- (4) Conduct an immediate investigation of a fluoride overfeed incident if fluoride analysis results show a concentration above 10 mg per liter. Appropriate recommendations shall be made to the community authorities to provide for public health protection. Recommendations may include: disconnection of the fluoridation system; draining of the water storage reservoir; notification of a health hazard to consumers; and/or restricting access to drinking water from the effected system until the health hazard is abated. All recommendations shall be based upon sound and prudent professional judgement to maximize public health protection.

6. RECOMMENDATIONS FOR OWNERS AND OPERATORS OF COMMUNITY WATER SUPPLIES.

Successful achievement of the goals and objectives outlined in this fluoridation policy requires a cooperative working relationship between the IHS and individual Indian tribes. The IHS function includes: promoting drinking water fluoridation; educating communities regarding benefits of fluoridation; purchasing and installing fluoridation equipment; training water system operators; providing technical assistance to tribal managers, administrators, and water system operators; and providing surveillance of the status of fluoridated water systems. The tribes are responsible for the operation and maintenance of their water systems including the fluoridation equipment. Tribal functions necessary to meet the policy goals include: Water sample collection and analysis for fluoride concentration (monitoring); reporting of analysis results; maintenance of data; participation in quality assurance testing program; and maintenance of fluoridation equipment including equipment repairs and purchase of parts, supplies, and chemicals.

The IHS shall encourage tribes and water utilities to operate fluoridation systems according to recommended public health standards. Tribes shall be encouraged to participate in the IHS fluoridation surveillance system so that fluoridation status can be tracked and to assist in identifying problems related to the fluoridation systems.

The IHS shall inform the responsible tribal officials that the criteria listed below represents prudent public health practice for the operation of drinking water fluoridation systems. Technical assistance provided by the IHS to owners and operators of fluoridated water systems shall recommend adherence to the following guidelines:

A. Control Limits.

The fluoride level in fluoridated water systems should be maintained as close to the recommended concentrations as possible, and in no case above or below the ranges noted in the following table. These values were taken from the publication "Water Fluoridation - A Manual for Engineers and Technicians" by CDC.

Annual Average of Maximum Daily Temperatures OF	COMMUNITY		S C H O O L	
	Recommended Fluoride Cont. (ppm)	Allowable Range of Fluoride Cont. (ppm)	Recommended Fluoride Cont. (ppm)	Allowable Range of Fluoride Cont. (ppm)
40.0 - 53.7	1.2	1.1 - 1.7	5.4	4.3 - 6.5
53.8 - 58.3	1.1	1.0 - 1.6	5.0	4.0 - 6.0
58.4 - 63.8	1.0	0.9 - 1.5	4.5	3.6 - 5.4
63.9 - 70.6	0.9	0.8 - 1.4	4.1	3.3 - 4.9
70.7 - 79.2	0.8	0.7 - 1.3	3.6	2.9 - 4.3
79.3 - 90.5	0.7	0.6 - 1.2	3.2	2.6 - 3.8

B. Sample Collection and Analysis.

- (1) Samples for analysis should be obtained from a convenient tap on a main line of the water system that is representative of the water throughout the system. In systems with multiple sources, more than one sample may be required.
- (2) Samples for fluoride analysis should be collected and analyzed as follows:
 - a. Daily intervals.
 - b. Anytime equipment failure or malfunction is suspected.
 - c. Immediately following repair of equipment.
 - d. More frequently if irregularities in levels are noted. This monitoring should continue until the results have stabilized.
- (3) The results of the daily monitoring for fluoride concentrations shall be used as the basis for control and adjustment of fluoride systems.

- (4) All fluoride monitoring instruments should have their measurement results verified by split sampling of a minimum of one sample collected each month. If an IHS laboratory is not available, the split sample should be analyzed at an EPA or State approved laboratory. Participation in the CDC Proficiency Testing Program should not be used in lieu of the split sampling requirement.

C. Reportins and Data Maintenance.

- (1) Analytical results of the daily and weekly fluoride samples should be maintained by the operator in a permanent record for each fluoridated water system.
- (2) Analytical results of a minimum of one weekly sample for each water system should be submitted in accordance with established procedures. Weekly reporting shall be done by the system operator.

7. CRITERION FOR SUCCESS.

The success of the IHS fluoridation program will be judged by the extent to which community and school water systems used by AI/AN people contain fluoride, either naturally occurring or supplemented, at levels within the desired range. This can only occur as a result of the IHS and the tribe meeting their respective responsibilities.

8. SUPERSESSION.

This circular supersedes IHS Circular No. 81-8, dated October 14, 1981.

9. EFFECTIVE DATE.

This circular is effective upon date of signature.



Michel E. Lincoln
Acting Director
Indian Health Service